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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,865	09/06/2006	Naoto Ikegawa	80089(302721)	3441

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EXAMINER	
DOLLINGER, MICHAEL M	
ART UNIT	PAPER NUMBER
1796	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,865	IKEGAWA ET AL.	
	Examiner	Art Unit	
	MIKE DOLLINGER	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-8 and 10-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-8 and 10-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1-5, 7-9, 12 and 13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of copending Application No. 10/591,706. Although the conflicting claims are not identical, they are not patentably distinct from each other. It is clear that all the elements of the instant claims 1-5 and 7-9 are to be found in the copending claim 13 (as instant claims 1-5 and 7-9 fully encompasses copending claim 13). The difference between the instant claims 1-5 and 7-9 and the copending claim 13 lies in the fact that the copending claim 13 includes more elements and is thus more specific. Thus the invention of copending claim* is in effect a "species" of the "generic" invention of instant claims 1-5

and 7-9. It has been held that the generic invention is "anticipated" by the "species". See *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993). Since instant claims 1-5 and 7-9 are anticipated by the copending claim 13, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 5, 6, 8 and 13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Furuta et al (US 5,891,532 hereinafter referred to as '532).

3. '532 discloses molded films [abstract] of a liquid crystal polyester resin composition comprising (A) 56 through 99% by weight of a liquid crystal polyester [abstract] and (B) 44 through 1% by weight of a thermoplastic resin having an epoxy

group [abstract]. The thermoplastic resin having an epoxy group (B) is preferably included in an amount of 2.0 to 30.0% by weight [column 10 lines 41-42] which corresponds to the claimed amount of 0.1 to 17% by weight (0.1 to 20 parts by weight with respect to 100 parts by weight of liquid-crystal polyester). The liquid crystal polyester (A) is preferably formed from 30 through 80% by mole of a repeating unit derived from p-hydroxybenzoic acid, 10 through 35% by mole of a repeating unit derived from an aromatic dicarboxylic acid, and 10 through 35% by mole of a repeating unit derived from an aromatic [column 7 line 63 through column 8 line 22]. Since '532 disclose only 5 alternatives for hydroxycarboxylic acids and 2-hydroxy-6-naphthoic acid is one of them [column 6 lines 11-40], one having ordinary skill in the art would have readily envisaged a polymer with the above molar amounts of repeating units with 2-hydroxy-6-napthoic acid in place of repeating units derived from p-hydroxybenzoic acid. The thermoplastic resin component (B) is preferably an epoxy group-containing ethylene copolymer comprising (a) 60 through 99% by weight of an ethylene unit and (b) 0.5 through 25% by weight of a glycidyl unsaturated carboxylate unit or an unsaturated glycidyl ether unit [column 8 lines 54-61]. '532 disclose a method of molding a film wherein the molding temperature is between 60°C below and 60°C above the flow temperature of the liquid crystal resin composition [column 12 lines 11-14]. Since the polymer and processing temperatures disclosed in Futura et al are the same as those claimed, it is held that the claimed change in dielectric loss tangent is inherent.

4. Since '532 teaches the same composition as claimed, the dielectric loss tangent of the resin composition would inherently be the same as claimed. If there is any

difference between the product of '532 and the product of the instant claims the difference would have been minor and obvious. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP 2112.01(I) , *In re Best*, 562 F2d at 1255, 195 USPQ at 433, *Titanium Metals Corp v Banner*, 778 F2d 775, 227 USPQ 773 (Fed Cir 1985), *In re Ludtke*, 441 F2d 660, 169 USPQ 563 (CCPA 1971) and *Northam Warren Corp v D F Newfield Co*, 7 F Supp 773, 22 USPQ 313 (EDNY 1934).

5. Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 USC 102 and 103. "There is nothing inconsistent in concurrent rejections for obviousness under 35 USC 103 and for anticipation under 35 USC 102." See MPEP 2112(III) and *In re Best*, 562 F2d at 1255, 195 USPQ at 433.

6. Claims 1, 2, 5-8 and 10-13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Furuta et al (US 5,759,674 hereinafter referred to as '674).

7. '674 discloses laminates of a film of a liquid crystal polyester resin composition comprising (A) 55 through 99% by weight of a liquid crystal polyester and (B) 45 through 1% by weight of a thermoplastic resin having an epoxy group laminated on a metallic

foil and is useful for producing a printed wiring board [abstract]. The resin composition may also contain an inorganic filler such as glass fibers [column 8 lines 48-53]. The thermoplastic resin having an epoxy group (B) is preferably included in an amount of 2 to 35% by weight [column 8 lines 22-24] which reads on the claimed amount of 0.1 to 17% by weight (0.1 to 20 parts by weight with respect to 100 parts by weight of liquid-crystal polyester). The liquid crystal polyester (A) is preferably formed from 30 through 80% by mole of a repeating unit derived from p-hydroxybenzoic acid, 10 through 35% by mole of a repeating unit derived from an aromatic dicarboxylic acid, and 10 through 35% by mole of a repeating unit derived from an aromatic [column 6 lines 19-44]. Since '674 discloses only 5 alternatives for hydroxycarboxylic acids and 2-hydroxy-6-naphthoic acid is one of them [column 4 lines 11-40], one having ordinary skill in the art would have readily envisaged a polymer with the above molar amounts of repeating units with 2-hydroxy-6-napthoic acid in place of repeating units derived from p-hydroxybenzoic acid. The thermoplastic resin component (B) is preferably an epoxy group-containing ethylene copolymer comprising (a) 60 through 99% by weight of an ethylene unit and (b) 0.5 through 25% by weight of a glycidyl unsaturated carboxylate unit or an unsaturated glycidyl ether unit [column 6 lines 56-65].

8. Example 5 includes 87% by weight of a polyester A-1 and 13% by weight of an epoxy containing resin B-3 [Table 3]. The polyester A-1 has a flow temperature of 324°C [column 11 line 12] and the epoxy containing resin B-3 has a composition of 83% ethylene and 12% glycidyl methacrylate [column 12 lines 29-33]. The resin is first molded into a film [column 13 lines 21-30] and subsequently laminated with a copper foil

at 290°C [column 14 lines 4-9]. The lamination reads on a heat treatment according to the claims.

9. Regarding claims 10 and 11, the claims recite limitations on the process of preparing the liquid crystal polyester and the monomers contained therein. However, what is actually claimed is a method for preparing a resin molded article of liquid crystalline polyester with a lowered dielectric loss tangent. Henceforth any limitations on the preparation of the polymer are product-by-process limitations and irrelevant to patentability in the absence of unexpected results in the form of a structural difference in the resulting composition. Since '674 disclose anticipatory liquid crystal polyesters, discussed above, all the limitations of claims 10 and 11 are met.

10. Since '674 teaches the same composition as claimed, the dielectric loss tangent of the resin composition would inherently be the same as claimed. If there is any difference between the product of '674 and the product of the instant claims the difference would have been minor and obvious. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP 2112.01(I) , *In re Best*, 562 F2d at 1255, 195 USPQ at 433, *Titanium Metals Corp v Banner*, 778 F2d 775, 227 USPQ 773 (Fed Cir 1985), *In re Ludtke*, 441 F2d 660, 169 USPQ 563 (CCPA 1971) and *Northam Warren Corp v D F Newfield Co*, 7 F Supp 773, 22 USPQ 313 (EDNY 1934).

11. Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 USC 102 and 103. "There is nothing inconsistent in concurrent rejections for obviousness under 35 USC 103 and for anticipation under 35 USC 102." See MPEP 2112(III) and *In re Best*, 562 F2d at 1255, 195 USPQ at 433.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuta et al (US 5,891,532 hereinafter referred to as '532) in view of Furuta et al (US 5,759,674 hereinafter referred to as '674).

13. '532 does not specifically disclose the molded resin films having a metal film formed in a circuit pattern.

14. '674 discloses nearly identical polymer compositions to those in '532. Including the amount of liquid crystal polyester and ethylene copolymer [abstract], the repeating units of the liquid crystal polyester [column 6 lines 19-43; column 4 lines 11-40], and the repeating units of the ethylene copolymer [column 6 lines 56-65]. '674 also teach that

the liquid crystal polyester films may be laminated with a metallic foil to produce printed-wiring boards [abstract].

15. It is *prima facie* obvious to select a known material based on its art recognized suitability for an intended use. See *Sinclair & Carrol Co. V. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made a resin molded article of a liquid crystal polyester and an epoxy-group containing ethylene copolymer with a metal film formed in a circuit pattern and heat treated below the flow-beginning temperature because '532 teach a heat treated liquid crystal polyester resin composition film and '674 teach the same composition with a metallic foil laminate for printed wiring boards. Absent any evidence to the contrary, there would have been a reasonable expectation of success of depositing a circuit patterned metal film on the resin composition film of '532.

16. Claims 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuta et al (US 5,759,674 hereinafter referred to as '674) in view of Okamoto et al (US 6,838,546).

17. '674, discussed above, discloses a printed circuit board comprising a resin composition layer including an inorganic filler according to the claimed resin composition. However, '674 does not disclose the amount of inorganic filler included in the composition.

18. Okamoto et al disclose an aromatic liquid crystalline polyester composition that is useful as a printed circuit board [column 14 lines 14-19]. Okamoto et al disclose a dielectric material added to the resin composition such as barium titanate and strontium titanate [column 9 lines 25-27] which is included in an amount of 0.2 to 200 parts by weight based on 100 parts by weight of the aromatic liquid crystal polyester and solvent [column 9 lines 29-31].

19. It would have been obvious to one having ordinary skill in the art the time the invention was made to have prepared a printed circuit board molded article by molding a blend of aromatic liquid crystal polyester, epoxy containing ethylene copolymer and an inorganic filler at a specific amount and subjecting it to heat treatment because '674 teach that it is within the skill of the art to prepare a printed circuit board molded article by molding a blend of aromatic liquid crystal polyester, epoxy containing ethylene copolymer and an inorganic filler and subjecting it to heat treatment and Okamoto et al teach that it is within the skill of the art to prepare a printed circuit board by molding a blend of aromatic liquid crystal polyester and barium titanate or strontium titanate in the amount claimed in the instant claims. One would have been motivated to include the barium titanate or strontium titanate of Okamoto et al because Okamoto et al teach that the titanates are dielectric powder additives and henceforth increase the dielectric constant (insulating properties) of the resin composition. Absent any evidence to the contrary, there would have been a reasonable expectation of success combining the dielectric powders of Okamoto et al with the resin compositions of '674.

20. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuta et al (US 5,891,532 hereinafter referred to as '532) in view of Okamoto et al (US 6,838,546).

21. '532, discussed above, discloses a printed circuit board comprising a resin composition layer including an inorganic filler according to the claimed resin composition. However, '532 does not disclose the amount of inorganic filler included in the composition.

22. Okamoto et al disclose an aromatic liquid crystalline polyester composition that is useful as a printed circuit board [column 14 lines 14-19]. Okamoto et al disclose a dielectric material added to the resin composition such as barium titanate and strontium titanate [column 9 lines 25-27] which is included in an amount of 0.2 to 200 parts by weight based on 100 parts by weight of the aromatic liquid crystal polyester and solvent [column 9 lines 29-31].

23. It would have been obvious to one having ordinary skill in the art the time the invention was made to have prepared a printed circuit board molded article by molding a blend of aromatic liquid crystal polyester, epoxy containing ethylene copolymer and an inorganic filler at a specific amount and subjecting it to heat treatment because '532 teach that it is within the skill of the art to prepare a printed circuit board molded article by molding a blend of aromatic liquid crystal polyester, epoxy containing ethylene copolymer and an inorganic filler and subjecting it to heat treatment and Okamoto et al teach that it is within the skill of the art to prepare a printed circuit board by molding a blend of aromatic liquid crystal polyester and barium titanate or strontium titanate in the

amount claimed in the instant claims. One would have been motivated to include the barium titanate or strontium titanate of Okamoto et al because Okamoto et al teach that the titanates are dielectric powder additives and henceforth increase the dielectric constant (insulating properties) of the resin composition. Absent any evidence to the contrary, there would have been a reasonable expectation of success combining the dielectric powders of Okamoto et al with the resin compositions of '532.

Response to Arguments

24. Applicant's arguments, see pages 6 and 7 filed 08/07/2009, with respect to Furuta et al (US 5,891,532 hereinafter referred to as '532) have been fully considered and are persuasive. The rejection of 10/10/2008 has been withdrawn.
However, a new 35 USC 102/103 rejection has been put forward in this office action. While the limitations in claim 8 (a method claim) require that the resin is first molded and subsequently heat treated, the same limitations in claims 1 and 13 are product-by-process claims. Since the molding process of '532 reads on both a molding step and a heat treatment as recited in claims 1 and 13, the same product should result and all the limitations of the claims are met. Any characteristics imparted to the molded article by the "heat treatment" of the claims would also be imparted to the molded article by the molding process of '532 when it is performed at the same temperature as the "heat treatment". **Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps.** "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability

is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979). **Once a product appearing to be substantially identical is found and a 35 USC 102/103 rejection is made, the burden shifts to the Applicant to show an unobvious difference.** "The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See MPEP § 2113.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MIKE DOLLINGER whose telephone number is (571)270-5464. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/mmd/

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796